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10/714,033	11/14/2003	Mohammad R. Haghighat	INTEL/17855	2870

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EXAMINER

NGUYEN, PHILLIP H

ART UNIT	PAPER NUMBER
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2191

MAIL DATE	DELIVERY MODE
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06/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/714,033

Applicant(s)

HAGHIGHAT ET AL.

Examiner

Phillip H. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 4/2/2007. Claims 1-30 remain pending and have been considered below.

Response to Arguments

2. Applicant's arguments filed 4/2/2007 have been fully considered but they are not deemed persuasive.

Applicant asserts on page 11 of the amendment that the Plum does not teach "identifying at least one test based on at least one test profile". However, Plum merely determines whether a path, when reached during testing, has been reached by previous tests. Moreover, Applicant clarify that "identifying" is a choice or selection is made between multiple options.

Examiner respectfully disagrees with all the allegations as argued. There are so many ways to identify a test. One of an ordinary skill in the art would have been considered "determining" is one way of identifying a test. The language of the claim does not provide enough information that "identification" is a choice or selection made between multiple options.

Applicant asserts on page 12 of the amendment that Plum does not teach generating one or more time stamps corresponding to each of the one or more program states".

Examiner respectfully disagrees with the allegation as argued. A definition of time stamp according to Microsoft computer dictionary: "*A time stamp indicates the*

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time and usually the date when a file or Web page was created or last modified." Plum teaches "an information line is written to the cumulative results file with the current date and time." Meaning, every record in the cumulative file has a time stamp that indicates the current date and time the record was created.

Applicant asserts on page 13 of the amendment that Plum does not teach a priority list of tests. Further more, Applicant also states that a priority list is a ranking of tests, based on test profiles, to aid in the identification of tests (pages 4-5, paragraph 15).

Examiner respectfully disagrees with the allegation as argued. Paragraph 15 does not really describe a priority list rather it states "generate a prioritized list of tests." Examiner does not know what a priority list of tests is so He interpreted as just a list of tests.

Applicant asserts on page 14 of the amendment that neither Plum nor Blasciak does not expressly or implicitly teach or suggest identifying at least one of a plurality of tests based on one or more test profiles in response to a query.

Examiner respectfully disagrees with the allegation as argued. Examiner in his previous action already gave a reason for combining Blasciak with Plum and explained why it is obvious to combine them. Applicant is suggested to look at the 103 rejection for further details.

Examiner is entitled to give claim limitations their broadest reasonable interpretation in light of the specification. See MPEP 2111 [R-1] Interpretation of Claim-Broadest Reasonable Interpretation. During patent examination, the pending claims

must be 'given the broadest reasonable interpretation consistent with the specification.' Applicant always has the opportunity to amend the claims during the prosecution and broad interpretation by the Examiner reduces the possibility that the claims once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541, 550-51 (CCPA 1969).

Claim Rejections - 35 USC § 101

3. The amendment filed on 4/2/2007 provides enough information to overcome the rejection set forth to claims 1, 9 and 25 for claiming directed to an abstract idea. However, claims 19-24 are directed to software per se. Since Applicant did not amend these claims to overcome the software per se, Examiner is maintaining the rejection set forth to claims 19-24 of previous action.

Claims 19-24 are non-statutory because the language of the claim is directed to software, per se, lacking storage on a medium, which enables any underlying functionality to occur. Therefore, they are rejected for non-statutory.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claims 1-6, 9-15, 18-22 and 24-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Plum (5,758,061).

As per claim 1:

Plum discloses:

- generating an instrumented code of the application ("instrumenting source code to resulted in an instrumented source code" Col 5, line 40-41);
- executing a plurality of tests on the instrumented code of the application ("define inputs in the form of test cases to be provided to this executable 108" Col 6, line 5-6);
- generating one or more test profiles associated with the plurality of tests ("permit the instrument code to generated coverage test results" Col 6, line 24-25, a cumulative coverage report and an increment coverage report are considered as profiles); and
- identifying at least one of the plurality of tests based on the one or more test profiles ("determines whether this particular path has been reached by any previous execution" Col 8, line 9-11, each path is represented one test).

As per claim 2:

Plum discloses:

- wherein generating the instrumented code of the application comprises inserting one or more probes into the application ("inserts instrumented code at appropriate insertion points within the original source code" Col 5, line 42-43).

As per claim 3:

Plum discloses:

- wherein generating the one or more test profiles associated with the plurality of tests comprises identifying one or more program states of the application (each information line is considered as one program state and must be identified before written to the reports) and generating one or more time stamps corresponding to each of the one or more program states ("an information line is written to the cumulative results file with the current date and time..." Col 13, line 50, each information line is considered as one program state).

As per claim 4:

Plum discloses

- wherein generating the one or more test profiles associated with the plurality of tests comprises generating one or more time stamps indicative of an earliest time ("an information line is written to the cumulative results file with the current date and time" Col 13, line 50) corresponding to a breakpoint of the application (a breakpoint is considered the end of one chunk or path or block of code)

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associated with one or more program states (each path is considered one program state).

As per claim 5:

Plum discloses:

- wherein generating the one or more test profiles associated with the plurality of tests comprises generating one or more time stamps corresponding to one or more program states of the application based on at least one of a hardware timer, a software timer, and a virtual timer (“#include <time.h> clock_t goal; _outp(0x43, 0xb6; /* prepare timer by sending 10111100 to port 43*/ Col 21, line 39-61).

As per claim 6:

Plum discloses:

- wherein identifying the at least one of the plurality of tests based on the one or more test profiles comprises generating a priority list (“coverage reports” Col 6, line 27-30) having the at least one of the plurality of test to identify one or more breakpoints (the end of each path or chunk or block of code is a breakpoint) of the application associated with one or more program states (each path is considered one program state).

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As per claim 9:

Plum discloses:

- generating an instrumented code of the application ("instrumenting source code to resulted in an instrumented source code" Col 5, line 40-41);
- executing a plurality of tests on the instrumented code of the application ("define inputs in the form of test cases to be provided to this executable 108" Col 6, line 5-6, a cumulative coverage report and an increment coverage report are considered as profiles Col 6, line 27-30);
- generating one or more test profiles associated with the plurality of tests ("permit the instrument code to generated coverage test results" Col 6, line 24-25); and
- identifying at least one of the plurality of tests based on the one or more test profiles ("determines whether this particular path has been reached by any previous execution" Col 8, line 9-11, each path is represented one test).

As per claim 10:

Plum discloses:

- wherein generating the instrumented code of the application comprises inserting one or more probes into the application ("inserts instrumented code at appropriate insertion points within the original source code" Col 5, line 42-43).

As per claim 11:

Plum discloses:

- wherein generating the one or more test profiles associated with the plurality of tests comprises identifying one or more program states of the application (each information line is considered as one program state and must be identified before written to the reports) and generating one or more time stamps corresponding to each of the one or more program states ("an information line is written to the cumulative results file with the current date and time..." Col 13, line 50, each information line is considered as one program state).

As per claim 12:

Plum discloses:

- wherein generating the one or more test profiles associated with the plurality of tests comprises generating one or more time stamps indicative of an earliest time ("an information line is written to the cumulative results file with the current date and time" Col 13, line 50) corresponding to a breakpoint of the application (a breakpoint is considered the end of one chunk or path or block of code) associated with one or more program states (each path is considered one program state).

As per claim 13:

Plum discloses:

- wherein the instructions, when executed, cause the machine to generate the one or more test profiles associated with the plurality of tests by generating one or

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more time stamps corresponding to one or more program states of the application based on at least one of a hardware timer, a software timer, and a virtual timer ((`"#include <time.h> clock_t goal; _outp(0x43, 0xb6; /* prepare timer by sending 10111100 to port 43*/"` Col 21, line 39-61).

As per claim 14:

Plum discloses:

- wherein the instructions, when executed, cause the machine to identify the at least one of the plurality of tests based on the one or more test profiles by generating a priority list ("coverage reports" Col 6, line 27-30) having the at least one of the plurality of test to identify one or more breakpoints (the end of each path or chunk or block of code is a breakpoint) of the application associated with one or more program states (each path is considered one program state).

As per claim 15:

Plum discloses:

- wherein the instructions, when executed, cause the machine to identify the at least one of the plurality of tests based on the one or more test profiles and user input by generating a priority list ("coverage reports" Col 6, line 27-30) having the at least one of the plurality of test to identify one or more program states (each path is considered one program state) for each breakpoints (the end of each path or chunk or block of code is a breakpoint) of the application.

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As per claim 18:

Plum discloses:

- wherein the machine readable medium comprises at least one of a programmable gate array, application specific integrated circuit, erasable programmable read only memory, read only memory, random access memory, magnetic media, and optical media (Col 5, line6-10).

As per claim 19:

Plum discloses:

- a data structure configured to store one or more test profiles ("instrument code is used to set up data structures for performing the coverage reporting process...generates coverage reports by writing the coverage reports to a file" Col 7, line 37-45, a file is a data structure and configured to store reports);
- a code coverage device ("instrumenter" Col 7, line 18) configured to generate an instrumented code of the application;
- a debugging and testing device configured to execute a plurality of tests on the instrumented code of the application ("the user may define inputs in the form of test cases to be provided to this executable 108" Col 6, line 5-6), and to generate one or more test profile associated with the plurality of test ("produces two different coverage test results: a cumulative coverage report and increment coverage reports" Col 6, line 25-30);

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- a test identifying device configured to identify at least one of the plurality at least one of the plurality of tests based on one or more test profiles ("determines whether this particular path has been reached by any previous execution" Col 8, line 9-11, each path is represented one test).

As per claim 20:

Plum discloses:

- wherein the code coverage device comprises at one of a compiler, an assembler, an interpreter, and a post-link (Col 6, line 62).

As per claim 21:

Plum discloses:

- wherein the instrumented code of the application comprises one or more probes ("instrument code") to identify one or more program states of the application ("inserts instrument code into each block or chunk of the program" Col 5, line 56-57) and to generate one or more time stamps corresponding to each of the one or more program states ("an information line is written to the cumulative results file with the current data and time" Col 13, line 50, each information line is one program state).

As per claim 22:

Plum discloses:

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- wherein the one or more test profiles comprises one or more time stamps indicative of an earliest time ("an information line is written to the cumulative results file with the current date and time" Col 13, line 50) corresponding to a breakpoint of the application (a breakpoint is considered the end of one chunk or path or block of code) associated with one or more program states of the application (each path is considered one program state).

As per claim 24:

Plum discloses:

- a test prioritizing device ("instrument code" Col 6, line 24-25) to generate a priority list ("Coverage reports" Col 6, line 27-30) having at least one of the plurality of tests.

As per claim 25:

Plum discloses:

- a dynamic random access memory (Col 5, line 7);
- a processor operatively coupled to the DRAM (Col 5, line 7), the processor being configured to:
 - o generating an instrumented code of the application ("instrumenting source code to resulted in an instrumented source code" Col 5, line 40-41);

- executing a plurality of tests on the instrumented code of the application (“define inputs in the form of test cases to be provided to this executable 108” Col 6, line 5-6);
- generating one or more test profiles associated with the plurality of tests (“permit the instrument code to generated coverage test results” Col 6, line 24-25); and
- identifying at least one of the plurality of tests based on the one or more test profiles (“determines whether this particular path has been reached by any previous execution” Col 8, line 9-11, “a cumulative coverage report and an incremental coverage report” are considered as profiles Col 6, line 27-30).

As per claim 26:

Plum discloses:

- wherein the instrumented code of the application comprises one or more probes inserted into the application to identify one or more program states of the application (“the instrumenting process inserts instrument code at appropriate insertion points within the original source code” Col 5, line 41-43) and to generate one or more time stamps corresponding to each of the one or more program states (“an information line is written to the cumulative results file with the current date and time” Col 13, line 50-51, each information line is considered one program state).

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As per claim 27:

Plum discloses:

- wherein one or more test profiles comprises one or more time stamps corresponding to one or more program state of the application (“an information line is written to the cumulative results file with the current data and time” Col 13, line 50, each information line is considered as one program state).

As per claim 28:

Plum discloses:

- wherein the one or more test profiles comprises one or more time stamps indicative of an earliest time (“an information line is written to the cumulative results file with the current date and time” Col 13, line 50) corresponding to a breakpoint of the application (a breakpoint is considered the end of one chunk or path or block of code) associated with one or more program states of the application (each path is considered one program state).

As per claim 29:

Plum discloses:

- wherein the processor is configured to generate a priority list (“coverage reports” Col 6, line 27-30) having the at least one of the plurality of tests to identify one or more breakpoints (a breakpoint is the end of each path or chunk code or block of

code) of the applications associated with one or more program states (each path is one program state).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7, 18, 16, 17, 23 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plum (5,758,061) in view Blasciak et al (5,265,254).

As per claim 7:

Plum discloses:

- when the instrumented program begins execution, it reads the cumulative results file in order to determine what chunks have already been reached by prior executions (Col 18, line 35-38, by reading the file, it can identify what tests have already been tested)

Plum does not explicitly disclose

- wherein identifying the at least one of the plurality of tests based on the one or more test profiles comprises identifying the at least one of the plurality of tests based on the one or more test profiles in response to a query.

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However, Blasciak discloses an analogous system of debugging software comprises a database for storing debugging information (Col 3, line 54-55) and database may then be queried (Col 7, line 38). It would have been obvious to one having an ordinary skill in the art at the time the invention was made to recognize using database to store reports is more convenience than file. Therefore, one of the skilled in the art would have been motivated to use database in Plum's approach for storing reports for more convenience and the database can be queried to identify what tests have already been tested.

As per claim 8:

Plum discloses:

- "write the coverage reports to a file" (Col 7, line 44-45),

Plum does not explicitly disclose:

- storing the one or more test profiles in a database.

However, Blasciak discloses an analogous system of debugging software comprises a database for storing debugging information (Col 3, line 54-55). It would have been obvious to one having an ordinary skill in the art at the time the invention was made to recognize using database for storing data is more convenience than file. Therefore, one of the skilled in the art would have been motivated to use database in Plum's approach for storing reports because it is easy to organize data and also for searchable or query purpose.

As per claims 16-17:

- are machine readable medium claims, reciting the limitations as recited in claim 7-8, therefore, have been addressed in connection with the rejection of claims 7-8.

As per claims 23 and 30:

- are apparatus and processor claims respectively, reciting the limitations as recited in claim 7 above, therefore, have been addressed in connection with the rejection of claim 7.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip H. Nguyen whose telephone number is (571) 270-1070. The examiner can normally be reached on Monday - Thursday 10:00 AM - 3:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PN
5/28/2007


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